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Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

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SECTOR 11

COAST OF CROATIA—RT MOVAR TO RT MARLERA

Plan.—This sector describes the coast, islands, and channels of Croatia from Rt Movar to Rt Marlera. The descriptive sequence is N along the general alignment of the coast and from seaward into the approach channels.

General Remarks

11.1 Winds—Weather.—During spring and summer, moderate SE and N winds prevail. The former is accompanied by rain squalls and lasts generally two or three days. The N wind brings good weather and is encountered at night, sometimes beginning about 2 hours before sunrise, then ceasing at sunrise. During summer, SSW or WNW breezes are usual during daylight.

In autumn and winter, the bora is the most violent wind encountered, enduring often for two or three days. In the S part of the area it is more moderate than in the N part, where, in Tihi Kanal and its vicinity, it can achieve hurricane force. The scirocco in winter is also strong and is accompanied by continuous rain. The libeccio is also encountered in severe force for a few hours, declining in velocity but continuing thereafter with mist and rain for long periods

The winds and weather in Velebitski Kanal and in Mali Kvarneric are those prevailing generally in the Gulf of Quarnaro. The high land of the NE shore of Velebitski Kanal produces violent bora squalls rendering navigation dangerous, especially since there are few tolerable anchorages. Small vessels usually hug the NE shore so that refuge can be obtained quickly in its coves and never remain underway at night during winter.

The bora blows violently in Mali Kvarneric but shelter can be found at times to leeward of some of the islands.

The scirocco blows stronger in the N part of Mali Kvarneric than in the S.

The summer land breeze blows from the E and the sea breeze blows from the NW. Often in place of the sea breeze there are variable light airs and calms, most particularly in the S part of Mali Kvarneric. Calms are rare near Ostrvo Rab, where local variable winds are frequent.

Tides—Currents.—The waters entering the NE part of the inlet from Rijeka Krka produce a constant current toward Kanal Svete Ante, normally in the order of 0.5 to 1.5 knots. In Kanal Svete Ante, the current always sets outward, being stronger on the N side. In summer, the velocity reaches 0.5 knots while in winter, after heavy rains, it may reach 3 knots

The axis of the NW coastal current, which has a normal velocity of 0.4 to 0.5 knot, lies approximately 9 miles off Dugi Otok and Ostrvo Kornat. In a position SW of Ostrvo Premuda, the coastal current forks into two branches, one entering Mali Kvarneric between Ostrvo Unjie and Ostrvo Losinj, and the other continuing along the W coast of Istria.

Under normal conditions the coastal current in Paski Kanal is affected by a slight tidal current, the NW being in the order of 1 knot and the SE being weak. The influence of the wind on the current is dependent on its duration, direction, and strength.

The constant coastal current enters Rijecki Zaliv from Tihi Kanal, proceeds along the N and W shores, where it enters Kanal Vela Vrata. Its average velocity is 0.5 knot. During a strong and prolonged scirocco, the current in and leaving Tihi Kanal can increase to 3 knots. Similarly, during a strong bora, the current in Kanal Vela Vrata can reach 4 knots.

Caution.—Due to conditions of armed conflict, vessels are advised to use extreme caution when in the surrounding territorial waters of the former Yugoslavia. Reports have been received of vessels being fired upon, port blockades, and indiscriminate minelaying.

All vessels calling at Croatian ports must send an ETA 24 hours in advance through a Croatian radio station.

Pilotage is compulsory for vessels over 500 grt and all vessels carrying dangerous chemical or combustible substances while proceeding between Croatian ports and while in Croatian coastal waters.

Coastal Features

11.2 Rt Movar (43˚30'N., 15˚57'E.), a round and hilly headland, is located 4.5 miles NW of the W entrance to Drvenicki Kanak which leads E to Split. The coast to the N of this headland is considerably indented, bordered by numerous islets and shoals, and is backed by bare and rugged mountainous terrain.

Hrid Mulo (43˚31'N., 15˚55'E.), a small and rocky islet, lies 1.5 miles WNW of Rt Movar and is conspicuous from the S. A main light is shown from a prominent structure, 18m high, standing on this islet.

Plic Veli Brak, an isolated shoal, lies about 1 mile NNW of Hrid Mulo. It has a least depth of 4.5m and is marked by a buoy. It is reported that this buoy is liable to break adrift in rough weather. Otocic Svilan, a small islet, lies 2 miles NW of Hrid Mulo and is 36m high.

Otocic Smokvica Vela lies 0.5 mile NW of Rt Movar. A small islet and several rocks lie on a shoal bank which extends up to about 0.5 mile NNE of the N end of this islet.

Rt Konj, 35m high, is located 0.6 mile N of Rt Movar and is the NW extremity of a small promontory.

Luka Rogoznica (43˚31'N., 15˚58'E.), a landlocked inlet, is entered between Rt Koni and Rt Gradina, which is marked by a light, 0.5 mile NE. This inlet is divided by Otok Rogoznica, 72m high, which is connected at its N end to the N shore of the inlet by a causeway. The small town of Rogoznica stands on the NW side of this islet and is fronted by a small craft quay with depths of 2 to 3.4m alongside.

Large vessels can take anchorage in depths of 25 to 30m, mud and weed, in the E part of the inlet about 0.3 mile E of the town.

Caution.—A prohibited anchorage area, which may best be seen on the chart, lies in the entrance and W part of Luka Rogoznica.

11.3 Rt Kremik (43˚35'N., 15˚56'E.), located 4.3 miles NNW of Rt Movar, rises steeply from the sea and can be easily recognized. A light is shown from a conspicuous tower, 8m high, standing on this point. Luka Peles, an inlet with two branches, is entered 1 mile S of Rt Kremik. An extensive marina lies in the N branch.

Luka Primosten is entered between Rt Kremik and Rt Sela, 0.5 mile NNE. The resort town of Primosten, dominated by a conspicuous spire, stands on the N side of this inlet and is fronted by a small craft harbor. Numerous prominent hotel buildings are situated along the shores of this inlet. A quay, 73m long, is situated in the NE part of the inlet. It has a depth of 5.5m alongside and is used by automobile ferries from Italy. Vessels can anchor in a depth of 16m, sand, near the middle of the inlet.

Otocic Lukomjak (43˚35'N., 15˚52'E.), 23m high, lies 2 miles W of Rt Kremik. This islet is the outermost danger of a group of islets, rocks, and shoals which front this point.

An isolated shoal patch, with a depth of 10.1m, lies about 1.8 miles SSW of Otocic Lukomjak. Large vessels should pass at least 2 miles W of the islet in order to avoid this danger.

Caution.—A prohibited anchorage area, which may best be seen on the chart, fronts Luka Peles.

Approaches to Sibenik

11.4 Sibenski Kanal (43˚40'N., 15˚52'E.) leads between Rt Rat, the SE extremity of Otok Zlarin, and the NW extremity of Otocic Dvainka, 0.4 mile SE. Both of these points are marked by lights. Vessels approaching Sibenik from the S are recommended to use this channel as it is the most direct and provides the easiest access to Kanal Sveti Ante. The entrance can readily be identified by the opening seen between the larger Otok Zlarin and the several smaller islets lying to the E.

Zlarinski Kanal (43˚41'N., 15˚49'E.) leads along the SW side of Otok Zlarin and is entered midway between Rt Rat and Otocic Komorica, a small islet marked by a light, 1.5 miles SW. This channel is sometimes used as an alternate route to Sibenik by vessels entering Sibenska Vrata, the middle passage, which leads NE along the N end of Otok Zlarin. Although Zlarinski Kanal is deep and clear, the entrance to the middle passage within Sibenska Vrata is more restricted and the channel generally is used only by vessels proceeding to or from the NW.

Several submarine cables lie in the above channels and may best be seen on the chart.

Sibenik (43˚44'N., 15˚53'E.)

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11.5 Luka Sibenik consists of a long and narrow basin which is surrounded by high land. The town of Sibenik stands, in the form of an amphitheater, on the E side of the basin and is fronted by the harbor. Kanal Sveti Ante leads between rocky cliffs into the basin. This passage is tortuous and narrow, but steep-to and deep.

Tides—Currents.—A constant current sets outward through Kanal Sveti Ante at rates of 0.5 to 1.5 knots. After heavy rains, the velocity of this current may reach 3 knots and cause some rips.

Depths—Limitations.—The basin provides 1,630m of total commercial berthage and has depths of 17 to 40m within it. The main facilities include Obala Oslobodjenja Quay, 293m long, with a depth of 3.2m alongside; Gat Krka Quay, 128m long, with depths of 3 to 5m alongside; Obala Jug Mornavice Quay, 444m long, with depths of 3 to 5m alongside; Gat Vrulje Quay, 101m long, with depths of 3 to 9.8m alongside; Obala Dobrika, 144m long, with a depth of 10m alongside; Obala Rogac, 125m long, with depths of 8.9 to 10m alongside; Obala Jugodrvo, 293m long, with depths of 5.9 to 7.9m alongside; and Obala Elektrozeljezara Quay, 110m long, with depths of 7 to 7.9m alongside. There are facilities for general cargo, bulk, and timber vessels. Vessels up to 40,000 dwt, 190m in length, and 9.9m draft have been accommodated.

Aspect.—The summit of Otok Zlarin, standing at its SW side, is surmounted by a conspicuous iron cross.

Rt Jadrija, the N entrance point of Kanal Sveti Ante, is marked by a light shown from a prominent structure. Fortress Sveti Nikola stands on an islet which lies on the S side of the entrance to Kanal Sveti Ante 0.2 miles E of Rt Jadrija. It is very conspicuous from the approaches. Hrid Rocni, marked by a light, lies 0.2 mile SE of Rt Jadrija. It is the N above-water rock of a group which lies on a bank extending from the mainland. Several rocks and shoals, which may best be seen on the chart, lie in the middle passage within Sibenska Vrata and are marked by lighted beacons or buoys.

Pilotage.—Pilotage is compulsory. Pilots may be contacted on VHF and board vessels approaching from the W about 3 miles WSW of the entrance to Kanal Sveti Ante. Pilots usually board vessels approaching from the S in Sibenski Kanal about 2 miles SSE of the entrance to Kanal Sveti Ante. Vessels carrying dangerous cargoes are boarded about 1 mile S of the S entrance to Sibenski Kanal. (See General Remarks).

Regulations.—The movement of vessels over 50 grt and all vessels with tows within Kanal Sveti Ante, the entrance channel, is controlled by the local authorities. The order of passage is generally determined by the time of request for transit. However, naval vessels and vessels on regular scheduled services have priority.

Speed through the channel must not exceed 6 knots.

A semaphore station is situated at Rt Burnji Turan.

Anchorage.—A designated anchorage area, which may best be seen on the chart, lies in S part of Sibenski Kanal 3 miles SSE of the entrance to Kanal Sveti Ante.

Caution.—An anchoring prohibited area, which may best be seen on the chart, lies in the approaches and extends up to 1.5 miles W of the seaward entrance to Kanal Sveti Anta.

Large vessels, which may need the assistance of a tug to enter Kanal Sveti Ante, should make the necessary arrangements well in advance.

A restricted area, which may best be seen on the chart, lies in the S part of the basin and fronts the naval base.

Several submarine cables lie in the approaches and may best be seen on the chart.

Off-lying Islands and Channels

11.6 Otocic Blitvenica (43˚37'N., 15˚35'E.), a small islet, is the SW and outer feature of the group of islands, islets, rocks, and reefs which front the mainland and lie in the approaches to Sibenik. A main light is shown from a prominent structure, 21m high, standing on this islet.

Zirjanski Kanal (43˚40'N., 15˚41'E.) leads NW between Otok Zirje and Otok Kakan. This channel, which is deep and clear, is frequently used by vessels proceeding into Murtersko More and can be easily navigated.

Otocic Hrbosnjak (43˚39'N., 15˚44'E.) lies in the middle of the SE entrance to the channel and may be passed close N or S. A light is shown from a tower, 6m high, standing on this small islet.

Plicina Cavlin (43˚44'N., 15˚33'E.), with a least depth of 1.8m, lies in the NW end of Zirjanski Kanal. This shoal is located 4 miles NW of the NW extremity of Otok Kakan at the NW end of a group of dangers.

11.7 Vrgadski Kanal (43˚50'N., 15˚33'E.), 7 miles long, leads between Otok Murter and Otok Vrgada and is the principal channel used in the S approach to Pasmanski Kanal and Zadar. Vessels with a maximum draft of 6.4m may pass through Pasmanski Kanal. Vessels with drafts over 6.4m must either proceed through Srednji Kanal or seaward of Dugi Otok, entering the inner channels via Prolaz Maknare or Kvarnericka Vrata.

Otocic Prisnjak (43˚50'N., 15˚34'E.) lies at the E side of the S entrance to the channel. A light is shown from a prominent structure, 15m high, standing on the SW side of this small islet.

Vrgadski Kanal narrows to a width of about 1 mile at a position 2 miles NW of Otocic Prisnjak.

Another channel, about 1 mile wide, passes W of Otok Vrgada and E of Otocic Obun, but a shoal patch, with a depth of 9.6m, lies in its center.

Pirovacki Zaliv (43˚50'N., 15˚37'E.), a nearly landlocked bay, lies between Otok Murter and the mainland. It is entered from the NW by an intricate passage which is partially obstructed by several islets and shallow rocky shoals. The entrance fairway has a depth of 6.4m in mid-channel and requires local knowledge. Otocic Artica, marked by a light, lies at the W side of the entrance channel 2.8 miles NW of Otocic Prisnjak. Anchorage, sheltered from all winds, can be taken almost anywhere within the bay in depths of 13 to 24m, mud. The village of Pirovac is situated on the NE shore of the bay and is fronted by a small craft harbor.

Large vessels can take anchorage outside of Pirovacki Zaliv in a depth of 30m, mud, about 0.7 mile N of Otocic Artica.

Otocic Ostarije (43˚55'N., 15˚28'E.) lies close off the mainland shore 3.8 miles NW of Otocic Artica. A lighted beacon, 7m high, stands in the shoal water close SW of this small islet.

11.8 Pasmanski Kanal (43˚56'N., 15˚25'E.) is the normal passage used by medium-sized vessels proceeding to and from Zadar. It is entered from the SE between Otocic Ostarije and the S end of Otok Pasman, 1 mile NE, and is encumbered with numerous islands, islets, and shoals. Otocic Babac, the largest of these obstructions, divides the channel into two passages.

The E channel, with a least depth of 6.5m, is generally used by traffic transiting N as it is well marked and can be navigated with ease. The W channel, with a least depth of 7.8m, is generally used by traffic transiting S. However, because shoals lying in the vicinity of Otocic Babac restrict the navigable width of the channel to about 250m, a maximum draft of 6.4m is recommended. Vessels proceeding N with drafts too great for the E channel may use the W channel, but extreme caution is recommended.

The bottom consists of sand and shells almost everywhere. The water in the channels is generally clear and sometimes gives the appearance of less than actual depths in the shoaler areas.

Several villages situated along the sides of the channel have conspicuous belfries standing in them. Biograd is situated on the NE side of the channel 2 miles NW of Otocic Ostarije. A conspicuous modern hotel stands in this town and is visible from the entire length of the channel. Anchorage can be taken according to draft N or NW of Biograd in depths of 5 to 11m, mud and sand.

Zadarski Kanal is an extension at the N end of Pasmanski Kanal which forms the approaches to Zadar.

Caution.—A maximum speed of 10 knots is allowed between Biograd and Otocic Komornik, 3 miles NW, due to small craft moorings.

The passage of vessels greater than 500 grt, vessels carrying dangerous substances, and vessels not certified gas free is prohibited within the S part of Pasmanski Kanal S of Rt Podvara (44˚03'N., 15˚18'E.).

Zadar (44˚07'N., 15˚13'E.)

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11.9 The town of Zadar is situated on a close off-lying peninsula. The old harbor lies within an inlet formed between the peninsula and the mainland and is protected by a breakwater. The new deep-water harbor lies at Luka Gazenica, 2.5 miles SE of the town.

Depths—Limitations.—The entrance to the old harbor, which is mostly used by passenger vessels and coasters, is 70m wide and has a depth of 7m. There is 900m of total berthage within the harbor with depths of 5 to 7m alongside. Generally, vessels up to 97m in length and 6.4m draft can be accommodated.

There are depths of 15 to 30m in the approach to the deep-water harbor at Luka Gazenica. The main commercial facilities include Dry Cargo Berth N, 144m long, with a depth of 8.5m alongside; Dry Cargo Berth S, 155m long, with a depth of 7.2m alongside; Bulk Cargo Berth N, 150m long, with a depth of 15m alongside; and a tanker berth with a 60m long face and depths of 11 to 15m alongside. Bulk vessels up to 11.6m draft can be accommodated alongside. Tankers up to 80,000 dwt can be handled with forward drafts up to 8.7m and aft drafts up to 10.7m. This harbor is also used as a base by vessels supporting off-shore drilling operations.

Aspect.—Otocic Osljak lies in the approaches on the W side of Zadarski Kanal 1.8 miles SW of the town. This islet is conspicuous from a considerable distance because of its

conical and wooded appearance and a light is shown from its NE extremity.

Bokanjac, a hill, stands 1.5 miles NE of Zadar. It is covered by vegetation and is conspicuous from nearly all directions.

On closer approach, the belfry of the cathedral, standing near the center of the town, and the chimney of a distillery, standing 0.3 mile N of the belfry, are very conspicuous and identifiable.

Pilotage.—Pilotage is compulsory. Pilots can be contacted on VHF. Pilots board about 1 mile W or 2 miles SE of the harbor entrance, as shown on the chart. Pilots will board vessels carrying dangerous substances in the entrance to Silbanski Kanal (44˚23'N., 14˚34'E.). (See General Remarks).

Anchorage.—Vessels awaiting a pilot or berth can take anchorage in a depth of 36m, mud, about 0.5 mile W of the entrance to the inlet. Large vessels can also take anchorage in depths of 15 to 22m, mud, S of the deep-water harbor.

Vessels carrying dangerous cargoes must anchor within a designated area, which may best be seen on the chart.

Caution.—Anchorage is prohibited in the entrance to the Luka Zadar and also in the vicinity of several submarine cables and pipelines which lie in the approaches and may best be seen on the chart.

Outer Islands and Channels

11.10 Srednji Kanal (44˚00'N., 15˚13'E.), also known as Middle Channel, has sufficient depths for large vessels. However, it is little used except by vessels proceeding between Sibenik and Zadar which are unable to navigate Pasmanski Kanal. The channel is entered between Otocic Kosara (43˚53'N., 15˚24'E.) and Hrid Galijolica, 1.5 miles SW, and is generally clear and deep in the middle. Otocic Kosara, a steep-to and yellowish colored islet, is marked by a light on its SW side. Hrid Galijolica, a rock, is 1m high and is also marked by a light.

Otok Pasman and Otok Ugljan, two long and narrow islands, border Srednji Kanal on its NE side and form a barrier for its full length with the exception of Prolaz Zdrelac, a narrow passage, which leads between the two islands. This passage has a depth of 4m and is spanned by a bridge with a vertical clearance of 18m. Sveti Mihovil Castle, surmounted by a signal station, is situated on the S slope of Otok Ugljan and is conspicuous from most parts of Srednji Kanal.

The SW side of Srednji Kanal is bordered by numerous islands, the largest of which are Otok Sit and Otok Iz. Several narrow passages, which are occasionally used by coasters, lie between the SW side of the channel and the E coast of Dugi Otok. These passages should not be attempted without local knowledge and in daylight only.

Rivanjski Kanal (44˚10'N., 15˚00'E.) continues NW from the N end of Srednji Kanal and leads between Otok Rivanj and Otok Sestrunj. It is generally used by vessels proceeding between Srednji and Zadarski Kanals. Otocic Tri Sestrice, a group of islets and rocks, extend up to 2 miles NW of Rt Zanavin, the NW extremity of Otok Rivanj. Vessels proceeding to Zadar may use the narrow channel which leads between the S islet of this group and Rt Zanavin but caution is necessary as dangers lie adjacent to the sides of the fairway.

Plicina Sajda, a steep-to rock, lies about 1 mile NNE of the N extremity of Rt Rivanj. It has a least depth of 4.5m and is marked by a lighted beacon.

Caution.—The passage of vessels greater than 500 grt, vessels carrying dangerous substances, and vessels not certified gas free is prohibited within an area which has been established in the channels between Otok Kornat (43˚50'N., 15˚17'E.) and Dugi Otok, on the W side, and Otok Pasman and Otok Ugljan, on the E side. This area, which may best be seen on the chart, extends from Otok Zirje (43˚39'N., 15˚40'E.), at the S end, to Otok Molat (44˚15'N., 14˚49'E.), at the N end. In exceptional circumstances and with a pilot embarked, vessels carrying oil may navigate in this area between 1 October and 31 March.

The tidal current in Rivanjski Kanal may, at springs, attain a velocity of 4 knots. At such times, vessels navigating within the narrow channels in this vicinity must exercise great caution.

Offshore Approaches

11.11 Dugi Otok (43˚59'N., 15˚04'E.) is comprised of a range of ash colored rocky hills. Vessels approaching the seaward coast of this island from the W will most likely first sight Vela Straza, 338m high. This peak is the summit of the island and stands close S of its central part. The NW end of Dugi Otok is low and whitish in color.

Rt Veli Rat (44˚09'N., 14˚49'E.) is the NW extremity of the island. A main light is shown from a conspicuous tower, 41m high, standing on this point. Another tower is situated 0.4 mile NNE of the light. Several small islets and rocks lie on a shoal bank which extends up to 1.6 miles NW of the point. It is reported (1994) that a stranded wreck lies about 0.8 mile NNW of the point.

Otok Kornat, with several prominent peaks, lies SE of Dugi Otok and is separated from it by Prolaz Proversa, a narrow channel, which is obstructed by several islets and shoals and is suitable only for small craft.

Numerous islands and islets extend to the SW of Otok Kornat. These and the passages leading between them are of interest only to small craft and coasters with local knowledge.

Luka Telascica (43˚53'N., 15˚10'E.), a large inlet, lies at the S end of Dugi Otok and extends 4 miles NW. It consists of several natural basins, is surrounded by barren hills, and provides one of the best anchorage roadsteads in the Adriatic. The inlet is entered between Rt Vidilica, the SE extremity of Dugi Otok, and the W side of Otocic Aba Velka, 0.3 mile ENE. Otocici Sestrice, consisting of two small islets, lies on the SE side of the approach 0.8 mile SE of Rt Vidilica. A main light is shown from a prominent tower attached to a dwelling, 26m high, standing on the NW end of the NW islet.

Ocean-going vessels can take anchorage in depths of 20 to 60m, mud, in the vicinity of Otocic Korotan which lies 1.2 miles within Luka Telascica. Small vessels, with drafts of less than 6m, can enter the NW part of the inlet and take anchorage nearly anywhere.

Caution.—Strong winds from the S raise a considerable sea within Luka Telascica.

Luka Telascica is reported to lie within the Kornati National Park.

11.12 Rt Bonaster (44˚12'N., 14˚51'E.), the SW extremity of Otok Molat, is marked by a light and forms the N entrance

point of the passage known as Prolaz Maknare. An isolated rocky shoal patch, with a depth of 11m, lies about 0.3 mile SSW of the point. Plic Bonaster, with a least depth of 6.5m, lies about 0.3 mile E of the point.

Prolaz Maknare (44˚12'N., 14˚56'E.) leads E through the islets lying off the N end of Dugi Otok and is generally used by vessels proceeding to Zadar. The channel leads into Visko More, an expanse of water at lying at the N end of Zadarski Kanal, and can be navigated by day or at night. The normal controlling depth within the fairway is 10m. However, by avoiding the 11m rocky patch lying SSW of Rt Bonaster, a least depth of 15m is encountered.

Otocic Golac, marked by a light, lies 0.7 mile SSE of Rt Bonaster. This small islet divides the entrance into two channels but the passage to the S of it is obstructed by a shallow shoal and is dangerous.

Velo Zaplo, the narrow part of Prolaz Maknare, lies 2.5 miles E of Otocic Golac. The main channel leads between the NW extremity of Otok Tun Veli, which is marked by a sector light, and Otocic Tun Mali, a small islet, which lies 0.2 mile NW and is also marked by a light.

Otocic Vrtlac, marked by a light, lies 3.8 miles E of Rt Bonaster at the E end of the passage. The main channel passes between the S side of this islet and Rt Kriz, the NW extremity of Otok Sestrunj, 0.6 mile SE.

The flood current flows E through the narrows of Prolaz Maknare at a velocity of 2.5 knots and meets the N flowing current from Srednji Kanal. It sometimes forms eddies in the vicinity of Otocic Vrtlac. The ebb current flows W through the narrows but usually does not exceed a velocity of 1.5 knots.

Brguljski Zaliv, a sheltered inlet, indents the S side of Otok Molat and is entered close E of Rt Bonaster. The village of Molat stands at the head of a cove, which is entered 1.5 miles ENE of Rt Bonaster, and is fronted by a small craft harbor. Small vessels can anchor in depths of 35 to 45m, mud and rock, in the center of the inlet.

Caution.—Submarine cables lie within Brguljski Zaliv and Prolaz Maknare and may best be seen on the chart.

Deep-draft vessels are recommended to transit Prolaz Maknare only in daylight.

11.13 Rijecki Zaliv (45˚15'N., 14˚25'E.) is an extensive basin in which several ports lie. It may be approached through three main channels and entered via three straits.

Kvarner (44˚50'N., 14˚10'E.), the W and widest channel, leads from the open Adriatic Sea end enters the basin via Kanal Vela Vrata. (See Paragraph 11.19).

Kvarneric (44˚49'N., 14˚33'E.), the middle channel, leads through Srednja Vrata into the basin. This channel is connected at its S end to the N end of Zadarski Kanal and to the open sea by Kvarnericka Vrata.

Velebitski Kanal (45˚00'N., 14˚50'E.), the E channel, is long and narrow and lies close W of the mainland. It is separated from Kvarneric to the W by several large islands. This channel leads through Vinodolski Kanal and Tihi Kanal at its N end and enters the NE head of the basin.

There are numerous anchorages for small craft along both shores of the N part of this channel. However, as there is little shelter for large vessels, this part of the channel is generally avoided during the late autumn and winter. At such times, large vessels proceed to Rijecki Zaliv via Srednja Vrata or Kvarner.

Mainland Coast—Inner Islands and Channels

11.14 Rt Skala (44˚12'N., 15˚09'E.), the NE entrance point of Zadarski Kanal, is located 6 miles NW of Zadar and is low and rocky. Rt Radman, located 1 mile SE of Rt Skala, is prominent, covered by trees, and is marked by a light.

Sidriste Zaton, a small bay, lies between Rt Skala and Rt Artic, 4.5 miles NNW. It provides good anchorage for ocean-going vessels in depths of 14 to 20m, mud, about 1 mile offshore. An isolated shoal, with a depth of 8.4m, lies about 2 miles NW of Rt Skala and should be avoided by large vessels using this roadstead. A lighted buoy is moored close W of Rt Artic and marks the shallow coastal bank.

Otok Vir (44˚18'N., 15˚04'E.) rises gently from the sea to a bare and double summit, 112m high. A main light is shown from a prominent structure, 21m high, standing on the SW side of the island.

Privlacki Zaton, a bay, lies between Rt Artic and Rt Kozjac, 2 miles NW. Anchorage can be taken within this bay in depths of 11 to 20m, soft mud, under the S shore of Otok Vir. Privlacki Gaz, a boat channel, lies between the SE end of Otok Vir and the mainland. It is 27m wide and is marked by beacons. A bridge, with a vertical clearance of 9m, spans the channel and connects Otok Vir to the mainland.

Otok Pag (44˚25'N., 15˚04'E.) is a long, narrow, and jagged island which lies NW and W of the mainland coast and forms the SW side of the S part of Velebitski Kanal (Planinski Kanal). It is indented with several inlets, some of which offer good shelter.

Svedi Vid, 349m high, is the summit of the island and is surmounted by a conspicuous chapel. This hill rises abruptly near the center of the island and can easily be identified even with the higher mountains of the mainland in the background.

11.15 Kanal Nove Povljane (44˚19'N., 15˚05'E.), entered between Otok Vir and the SE end of Otok Pag, leads 5 miles SE into Ninski Zaliv. Shoals at the inner end of this channel restrict the fairway to a width of about 250m with a controlling depth of 8m. Vessels with a draft of over 6m are advised not to use this channel.

Ninsko-Ljubacki Kanal (44˚18'N., 15˚15'E.), a tortuous channel, connects the SE end of Kanal Nove Povljane with Ljubacka Vrata. This channel leads through the deep inlets which indent the SE coast of Otok Pag, on the NW side, and the mainland, on the SE side. It is entered between Rt Prutna, which is the S extremity of Otok Page and is marked by a light, and the NW extremity of Poluotok Jesenovo. Anchorage can be taken in any of the deep inlets, according to draft.

Ljubacka Vrata (44˚19'N., 15˚16'E.), a narrow and deep passage, separates the S end of Otok Page from the mainland and connects the E end of Ninsko-Ljubacki Kanal with the S end of Velebitski Kanal. A bridge, with a vertical clearance of 35m, spans this passage.

Before entering this passage in clear weather, vessels over 50 grt and all vessels with a tow must sound one long blast. The vessel which first sounds this signal has the priority to enter and all other vessels must wait outside. Vessels already

navigating the passage must answer the single long blast of another vessel by sounding at least four short blasts. Special signals are required for passage in thick weather and the local authorities should be consulted in this case.

Generally, a current with a rate of 1 knot sets S through Ljubacka Vrata but, at times, a rate of 3 knots has been experienced.

Pilotage through Ljubacka Vrata is compulsory for foreign vessels over 500 grt and pilots are available, with advance notice, at Zadar. (See General Remarks).

Velebitski Kanal—South Part

11.16 The S part of Velebitski Kanal trends SE for 12 miles from the E entrance of Ljubacka Vrata to the entrance of Novsko Zdrilo (Maslenicki Kanal). The NE shore of the channel is high and precipitous and contrasts considerably with the SW side which is backed by low and sloping hills.

Otocic Razanci, consisting of three small and low islets, lies on a shoalbank in the middle of the channel 3 miles ESE of the E entrance of Ljubacka Vrata. These islets are not easily seen in periods of reduced visibility. A light is shown from a structure, 6m high, standing on the SE end of Razanac Veli, the SE and largest islet. A conspicuous statue stands on the summit of this islet. The passage lying on the N side of these islets is preferred, but no attempt should be made to pass between them. The channel narrows 5 miles SE of Otocic Razanci and the fairway is bordered by coastal banks and reefs.

Nosko Zdrilo (Maslenicki Kanal) (44˚15'N., 15˚31'E.) is entered at the N end between Rt Baljenica, a conspicuous brown and yellowish point, and Rt Korotanja, 0.2 mile SW. These entrance points are fringed by shoals which are marked by buoys. The fairway of the entrance has a least depth of 7.9m. The channel is 2 miles long and has a minimum width of 200m with depths of 18 to 33m. Generally, vessels up to 140m in length and 7.9m draft can transit the passage.

Pilotage is compulsory for foreign vessels over 500 grt through Novsko Zdrilo. Pilots are available, with advance notice, from Zadar and will board in daylight only outside the entrance to the channel. (See General Remarks).

It has been reported (1994) that passage through Novsko Zdrilo is prohibited to all vessels. Vessels should contact the authorities at Zadar for the latest information concerning transit through this channel.

It has also been reported (1997) that a new bridge, with a vertical clearance of 77m, now spans the S end of the channel.

11.17 Maslenica (44˚13'N., 15˚33'E.), a small harbor, lies on the NE side of the S entrance of Novsko Zdrilo and is used for loading bauxite. A quay, 120m long, has a depth of 10m alongside. However, vessels are limited by the depths within the fairway of Novsko Zdrilo.

It is reported (1995) that this harbor is closed to shipping due to the destruction of the bridge at the S end of Nosko Zdrilo.

Novigradsko More (44˚12'N., 15˚32'E.), a land-locked bay, lies at the S end of Novsko Zdrilo and provides good anchorage. Rijeka Zrmanja flows into the bay at the E side. This river is navigable by small craft as far as the village of Obrovca, 6 miles above the mouth.

Luka Novigrad, a narrow inlet, lies at the S end of Novigradsko More. The small town of Novigrad stands along the shore and on the slopes of the hills at the E side of the head of the inlet and is fronted by a small craft harbor. Karinsko Zdrilo, a narrow and tortuous channel, leads from the SE end of Novigradsko More into Karinsko More, a land-locked basin. This passage has depths of 11 to 20m in the fairway, but a sharp turn in the S part, with a width of only 90m, restricts its use to small craft and local coasters.

Caution.—Mussel beds, oyster beds, and tunny fisheries lie along the shores of Novigradsko More and Karinsko More.

Velebitski Kanal—Central Part

11.18 The central part of Velebitski Kanal trends NW from the E entrance of Ljubacka Vrata and leads between the mainland and the E side of Otok Pag. The N shore of the channel is high and steep but the S shore is lower and gently sloping. The fairway is deep and clear and easily navigated, but is exposed to the full force of frequent NW winds.

Paski Zaliv (44˚28'N., 15˚01'E.), a large bay, lies on the E side of Otok Pag and offers good shelter. The entrance is located 11.5 miles NW of the E entrance Ljubacka Vrata and lies close S of Rt Kristofor, a steep point, which is marked by a light and fronted by shallow rocks which extend up to 0.4 mile S of it. The entrance fairway has depths of 20 to 57m, but a shoal, with a depth of 10.4m, lies on its E side W of Rt Kristofor.

The small town of Pag is situated in the S part of the bay, 2.3 miles SSW of Rt Kristofor, and is fronted by a small harbor with a depth of 4m. A salt flat, 3 miles long, occupies the valley to the SE of the town and is crossed by a bridge. The W side of the town is quayed and is approached through a marked channel, 50m wide, with a depth of 4.3m. Small vessels loading salt and ferries use this harbor. The tidal currents in the channel are appreciable and sometimes attain rates of 4 knots. Anchorage can be taken by large vessels in depths of 18 to 25m, soft mud, about 0.7 mile NW of the church spire standing in the town. Good anchorage for large vessels can also be found in the NE part of Paski Zaliv in depths of 25 to 35m, sand and mud. Pilotage is compulsory for foreign vessels over 500 grt. Pilots are available and will board, with advance notice, off Rt Kristofor.

Rt Deda (44˚37'N., 14˚52'E.), marked by a light, is located 11.8 miles NW of Rt Kristofer and is the NE entrance point of Uvala Stara Novalja, a deep bay. This bay has easy access and is free of dangers except near its head which is shallow. The small town of Stara Novalja is situated along the NE side of the bay and is fronted by a small craft harbor which has a depth of 3.5m and is used by ferries. A prominent chapel stands in the town. Large vessels can take anchorage in depths of 27 to 38m, sand and mud with good holding ground, close W of the harbor.

Outer Islands and Channels

11.19 Otok Molat (44˚14'N., 14˚51'E.), the S end of which forms the N side of Prolaz Maknare, is bordered on its W side by numerous islets and shoals. Otocic Tramerka, the largest and outer islet, lies 1.5 miles offshore. It is 51m high and can

be easily distinguished by a double hump. Greben Bacvica, a shallow rock, lies about 0.5 mile SE of Otocic Tramerka and frequently breaks. The E shore of Otok Molat is generally clear except for a line of islets and shoals which lies parallel to it and about 1 mile offshore.

Otok Ist (44˚16'N., 14˚45'E.), covered with brush and much indented, is separated from Otok Molat by Prolaz Zapuntel, a narrow channel with a least depth of 6m. The island is nearly divided into two parts by bays on its NW and SW sides which are separated by a narrow isthmus of low land. Several small islets lie up to 1 mile off the W side of this island and may best be seen on the chart. A chain of narrow islets and shoals extends up to 4.4 miles NW of the N extremity of the island.

Otok Skarda (44˚17'N., 14˚43'E.), 102m high, is covered with brush and is hilly. Skardska Vrata, a narrow and deep passage, separates this indented island from the NW side of Otok Ist. This channel leads from the open sea into the SE end of Silbanski Kanal, but navigation through it is complicated by several islets and shoals lying in the N and S approaches and by the tidal currents which attain rates of 3 to 4 knots.

Otok Premuda (44˚17'N., 14˚43'E.), 88m high, lies with Rt Lopata, its SE extremity, located 1 mile NW of Otok Skarda. This narrow island is rounded and mostly covered with brush, but it is not easily identified from a distance. A number of islets and rocks lie on a reef which extends up to about 1 mile NW of the NW end of the island.

Premudska Vrata leads between Otok Skarda and Otok Premuda. A ridge, with depths of 10.4 to 14m, extends across the channel between Rt Suha, the NW extremity of Otok Skarda, and Rt Lopata, the SE extremity of Otok Premuda. The tidal currents in this passage attain rates of 2 knots and occasionally cause eddies on the ridge. Transit is recommended only in daylight with local knowledge.

11.20 Kvarnericka Vrata (44˚26'N., 14˚34'E.), 5 miles wide, is the principal channel leading between the open sea and the S part of Mali Kvarneric. It lies between Otok Premuda and Otok Silba, on the S side, and Otok Ilovik, on the N side.

Hrid Grujica (44˚25'N., 14˚34'E.) lies in the center of this channel. A main light is shown from a prominent structure, 15m high, standing on this small islet.

The main passage, 2.5 miles wide, leads S of Hrid Grujica and N of the islets lying off the N end of Otok Premuda. The passage lying to the N of Otocic Grujica is not recommended except with local knowledge as an unmarked shoal patch, with a depth of 7m, lies nearly in its center.

A shoal patch, with a depth of 15m, lies about 1.7 miles NW of the N extremity of Otok Premuda and should be avoided by deep-draft vessels. An isolated shoal, with a depth of 9.5m, lies about 1.5 miles SE of Hrid Grujica and can best be avoided by passing about 0.6 mile SE of the islet. Veli Brak, an isolated rocky shoal, lies about 3.2 miles NE of Hrid Grujica. It has a depth of 2m and is marked by a lighted beacon.

Silbanski Kanal (44˚22'N., 14˚38'E.) leads between Otok Premuda, on the SW side, and Otok Silba, on the NE side. It is divided roughly in the center by the chain of narrow islets and rocks which extend NW from the N end of Otok Ist.

Otok Silba (44˚23'N., 14˚42'E.) is low in the middle and has hills at the N and S ends. The summit of the island is 83m high and stands in the N part. The village of Silba occupies the whole width of the low part of the island and is fronted by small craft harbors on both coasts. Two conspicuous church steeples stand in the village.

Otok Olib (44˚23'N., 14˚47'E.) is similar to Otok Silba, being low in the middle and high at both ends. The summit of the island is 74m high and stands in the S part. The slopes of the island are mostly covered by olive trees. The village of Olib is situated on the W side of the island and is fronted by a small craft harbor. A conspicuous chapel belfry stands in this village. Several islets and rocks lie on a shoal bank which extends NW from the N end of the island. Plic Morovnik, a rocky patch, lies about 3 miles NW of the N end of the island. This shoal has a least depth of 4.6m and is the outer danger.

Otok Planik, a small island, lies 2.8 miles NE of the S end of Otok Olib and is mostly covered with bushes. Several rocks lie on a shoal bank which extends up to 1.2 miles SE of the S extremity of this island. An isolated shoal patch, with a depth of 4.6m, lies about 1 mile SSW of the S extremity of the island.

11.21 Olipski Kanal (44˚22'N., 14˚44'E.) leads NNW between the E side of Otok Siba and the W side of Otok Olib and merges into the N end of Pohlipski Kanal. This channel is deep and has a minimum navigable width of 0.7 mile. It is often used by vessels proceeding to and from Zadar. Good anchorage is available in depths of 13 to 18, mud, at the E side of the channel about 0.6 mile off the harbor at the village of Olib.

Otok Maun (44˚25'N., 14˚56'E.), 65m high, is a narrow island which is partly covered in bushes and grass. A ruined chapel stands on the W side of the N part of the island. Several islets lie on a shoal bank which extends up to 1.8 miles ESE of the S end of the island. Otok Skrda, a rocky and bare island, lies 1 mile NW of the NW extremity of Otok Maun and is fronted by a reef at its SE end. A main light is shown from a structure, 12m high, standing on the NW side of the island.

Pohlipski Kanal (44˚26'N., 14˚50'E.) leads between the E side of Otocic Planik and the W side of Otok Maun. This channel is the main inner route to the S, but small vessels will sometimes find Maunski Kanal, which lies between Otok Maun and the E side of Otok Pag, to be more suitable during daylight and in bad weather.

Otocic Pohlib (44˚24'N., 14˚53'E.), a bare and steep-to islet, lies in the middle of Pohlipski Kanal. A main light is shown from a prominent structure, 10m high, standing on the summit of this islet.

Kvarneric

11.22 Rt Lun (44˚42'N., 14˚44'E.), the NW extremity of Otok Pag, is a slender point bordered on its W side by a reef and several shoals. A ruined chapel stands on the point.

Plic Plitvac, with a depth of 7.1m, lies 0.6 mile W of the point and is the outer danger. A conspicuous church stands in a small town, which is situated 1.2 miles SE of Rt Lun, and is visible from all directions.

Otocic Dolfin (44˚41'N., 14˚41'E.), an islet partly covered with grass, lies 2 miles WSW of Rt Lun and is marked by a light. This islet is the S and largest of a chain of islets and rocks which extends up to about 4 miles NW.

Paski Kanal (44˚43'N., 14˚45'E.) leads between the NW end of Otok Pag and the W side Otok Rab. This channel is deep and connects the central part of Velebitski Kanal with the S part of Kvarneric.

11.23 Otok Rab (44˚24'N., 14˚53'E.), a much indented island, is traversed by a chain of hills. The summit of this island stands at the center of the NE side. It is 410m high and surmounted by a conspicuous television mast. The NE side of the island is mostly steep and bare. The SW side slopes more gently and is partly covered by trees.

Rt Kalifront, the W extremity of the island, is a broad, low, and wooded point which is marked by a light. A large indentation, which is divided into two inlets, lies between this point and Rt Sorinj, 2.7 miles NNE. Supertarska Draga, the NE inlet, provides good anchorage protected from all but NW winds in depths of 20 to 30m, soft mud, about 1 mile from its head.

The NE end of Otok Rab consists of a much indented and rocky peninsula which is fringed by reefs. The resort village of Lopar, which is fronted by a small craft harbor, is situated at the head of an inlet which indents the N side of this peninsula.

Rt Glavina, the SE extremity of the island, is located at the W side of Velebitski Kanal 1 mile W of the mainland. A shallow shoal, marked by a lighted beacon, lies close S of this point.

Otok Dolin, a steep-to and narrow island, lies parallel to the SW shore of Otok Rab. Barbatski Kanal, 0.2 mile wide, leads between the SW shore of Otok Rab and the NE side of Otok Dolin and is sometimes used as a place of refuge.

Rab (44˚45'N., 14˚46'E.), a resort town, stands on a small peninsula at the W side of Otok Rab. It is fronted by a small quayed harbor which is protected by breakwaters. The harbor is approached between the NW extremity of Otok Dolin and the SE extremity of a tongue of land, 0.8 miles NW. The quays have depths of 3 to 5.4m alongside and are mostly used by small craft, coasters, ferries, and pleasure craft. Large vessels may anchor in depths of 16 to 20m, soft mud, in the sheltered roadstead and work cargo from lighters. Pilotage is compulsory and available.

11.24 Otocic Oruda (44˚33'N., 14˚35'E.), almost flat with a few trees, is the largest of a group of whitish islets and rocks which lie on a bank extending up to about 6 miles SE of the SE end of Otok Cres. Hrid Bik, a rock almost awash, lies 1.5 miles ESE of Otocic Oruda and is the SE and outer danger. A main light is shown from a structure, 7m high, standing on this rock. Although it is fairly steep-to, vessels are recommended to pass at least 1 mile SE of this rock.

An inner passage, with depths of 15 to 19m, leads NE over the bank about 1.2 miles S of the S end of Otok Cres. However, depths of less than 10m lie close adjacent to the channel and local knowledge is advised.

Otok Losinj (44˚40'N., 14˚22'E.), a narrow and indented island, consists of several mountainous heights connected by low isthmuses and appears from a distance as three separate islands. The summit of the island is 589m high and stands in the N part. A peak, 334m high, stands in the S part of the island and is surmounted by a prominent chapel.

Luka Mali Losinj, a large and natural inlet, lies on the W side of the lower and middle part of the island and is considered one of the best roadstead anchorages in the N Adriatic. The resort town of Mali Losinj stands on a hill at the SE end of the inlet and is fronted by a small harbor used by coasters and small craft. Several islets, which provide good shelter, lie in the approaches to the inlet.

Otocici Orjule, consisting of two light-colored islets, lies on a shoal bank 0.8 mile E of the SE end of Otok Losinj. The N and largest islet is 30m high.

11.25 Losinjski Kanal (44˚30'N., 14˚34'E.) extends 13 miles NW along the E side of Otok Losinj from the vicinity of Otocici Orjule. The N end of this channel is shallow and converges to form Osorski Tjesnac, a narrow passage, which leads between Otok Losinj and the SE side of Otok Cres and connects the head of Losinjski Kanal with the E side of Kvarner. This passage, which is 150m long and only 12m wide, is available to small vessels with drafts of less than 3m and is spanned by a swing bridge. There are strong and irregular currents in the N part of the passage due to the considerable differences of water levels between Losinjski Kanal and Kvarner.

Otok Cres (44˚52'N., 14˚21'E.) is 35 miles long and a chain of mountains extends along its entire length. The E shore of the island, which is indented in the S part, forms the W side of Kvarneric. The W shore of the island forms the E side of Kvarner; several villages are situated along its N part and the land backing the coast is cultivated with olive groves and vines. The highest peaks rise in the N part and the summit, 604m high, stands 6 miles S of Rt Jablanac, the N extremity of the island. The central part of the island is lower and includes an inland lake, but rises to a peak, 482m high, at its W side. The S part of the island has peaks of 60 to 154m high and is wooded.

11.26 Cres (44˚58'N., 14˚24'E.) (World Port Index No. 41050), a resort town and fishing center, is situated at the NE end of Luka Cres, an inlet, which indents the W side of the island. This inlet forms an excellent natural harbor. It is surrounded by hills which are steep on their NE sides and give good protection from the winds. The town is fronted by quays, with depths of 3 to 5.5m alongside, which are used by small craft, fishing vessels, and ferries.

Otocic Trstenik (44˚40'N., 14˚35'E.), an islet fringed by a shoal bank, lies 2.5 miles NE of the SE end of Otok Cres. A main light is shown from a prominent structure, 12m high, standing on the summit of this islet.

Otok Krk (45˚05'N., 14˚35'E.), a large island, lies at the NE end of Kvarneric. The summit, 569m high, stands in the SE part. Several large bays indent the coasts of the island and offer good shelter. The N end of the island is connected to the mainland by a road bridge and an airport is situated on a plateau 1.7 miles SSE of the N extremity of the island.

Srednja Vrata (45˚00'N., 14˚29'E.) leads between the NE part of Otok Cres and the W side of Otok Krk and connects Kvarneric with Rijecki Zaliv.

Otok Plavnik (44˚58'N., 14˚32'E.)lies with Rt Veli Pin, its N extremity, located 0.7 mile E of the E side of Otok Cres and divides Srednja Vrata in its S part into two channels. This cliffy island is 194m high and partly wooded. Several small islets lie on a shoal bank which extends about 1.5 miles SE from its S end.

Three shoals lie in the channel which passes to the E of the island. Sika od Kormata, with a depth of 4.6m, Sika od Negrita, with a depth of 6.7m, and Plicina But, with a depth of 8.8m, lie about 1.2 miles E, 1.7 miles ENE, and 2.2 miles NE, respectively, of the SE extremity of Otok Plavnik.

Kanal Krusija leads to the W of Otok Plavnik. This channel is frequented because of its steep-to shores and deep passage. A strong current may occasionally be experienced in this channel, depending on local weather conditions, but this passage is recommended over the one leading E of Otok Plavnik.

11.27 Krk (45˚01'N., 14˚34'E.), a small town, is situated at the head of Krcki Zaliv, a bay, entered at the SW side of Otok Krk. It is fronted by a small harbor which is protected by a breakwater. There are depths of 2.4 to 4m in the harbor which is used by small craft, coasters, and ferries. Anchorage can be taken by large vessels in depths of 35 to 40m, sand and mud, in the bay about 0.6 mile SE of the harbor. A prominent cathedral stands in the town.

Puntarska Draga, an almost landlocked sandy basin, lies at the head of Krcki Zaliv. It is entered through a narrow and shallow channel, which is marked by buoys and lighted beacons, and is only used by small craft.

Bascanska Draga (44˚58'N., 14˚45'E.) is entered at the SE end of Otok Krk between Rt Skuljica, marked by a light, and Rt Rebica, 0.3 mile ENE. The small resort town of Baska is situated at the head of this bay and stands at the foot of steep hills. It is fronted by a small craft harbor which is used by local ferries. Large vessels can take anchorage, sheltered except from the SE, in depths of 20 to 30m, soft mud, near the head of the bay and about 0.3 mile SE of the town.

Velebitski Kanal—Northern Part

11.28 Jablanac (44˚42'N., 14˚54'E.), a small town, is situated on the mainland at the E side of the entrance to the N part of Velebitski Kanal. It stands at the head of a small bay and is fronted by a small craft harbor which is used by ferries. A light is shown from Rt Stokic close N of the harbor.

The fairway of Velebitski Kanal is only 1 mile wide in this vicinity and may easily be navigated by eye as the mainland coast is barren and precipitous.

Otok Goli (44˚50'N., 14˚49'E.), bare and precipitous in its NE part, lies on the W side of Velebitski Kanal 9 miles NNW of Jablanac. This island is generally steep-to except at its SE extremity where a rocky reef extends up to about 0.5 mile SE. Rt Sajalo, the NW extremity of the island, is marked by a light and fringed by rocks.

Otok Sveti Grgur (44˚52'N., 14˚46'E.), 225m high, lies 1 mile NW of Otok Goli. This island is also mostly steep-to and bare with some bushes on its S side.

Rapski Kanal is deep and leads between Otok Sveti Grgur and Otok Rab. This channel is seldom used as the fairway is only 0.3 mile wide in places and several rocky patches lies adjacent to its S side.

Otok Privic (44˚55'N., 14˚47'E.), 357m high, is hilly, barren, and steep-to. Rt Strazica, the NW extremity of the island, is marked by a light. It is reported that a prominent tree stands 0.4 mile SSE of this point.

Senjska Vrata, the passage leading between the S end of Otok Krk and Otok Privic, is 0.4 mile wide at its narrowest part and is generally deep. This channel is primarily used by vessels proceeding from the SW part of Kvarneric to the N reaches of Velebitski Kanal.

11.29 Luka Senj (44˚59'N., 14˚54'E.) (World Port Index No. 41090), a small harbor, lies within a bay at the entrance of a deep ravine on the mainland coast. The prominent town of Senj stands around the bay and is overlooked by the conspicuous ruins of a castle situated on a hill. The harbor is protected by two short breakwaters and has depths of 2.5 to 6m alongside the quays. It is used by coasters and small vessels up to 4,000 dwt. Pilotage is compulsory for foreign vessels over 500 grt and pilots are available with advance notice from Rijeka. During good weather, large vessels can anchor in depths of 20 to 30m, mud, to the W of the S breakwater.

Otocic Zecevo (45˚00'N., 14˚50'E.), 12m high, lies in the fairway 2.7 miles W of the entrance to Luka Senj. This small islet is bare and steep-to, except at its W side.

Novi Vinodolski (45˚08'N., 14˚47'E.) (World Port Index No. 41080), a small resort town, is situated on the mainland 9 miles NNW of Luka Senj. It stands on high ground, with a conspicuous tall belfry, and is fronted by a small harbor enclosed by breakwaters. There are depths of 2 to 5m alongside the quays and the harbor is used by small craft and coasters. A conspicuous water tower stands 0.6 mile ENE of the harbor.

11.30 Vinodolski Kanal (45˚11'N., 14˚40'E.) is an extension of Velebitski Kanal and leads between the E side of Otok Krk and the mainland. The channel, 9 miles long, extends NW from the vicinity of Novi Vinodolski to the S end of Tihi Kanal.

The Adriatic Highway follows the mainland coast, close inland, along the E side of the channel and is conspicuous in places.

Rt Silo (45˚09'N., 14˚40'E.), marked by a light, is located on the W side of the channel and is fringed by shoals. This point is the termination of a narrow and low tongue of land which projects from the E side of Otok Krk. Plic Konjska, with a depth of 4.4m, lies about 0.5 mile SE of the point.

Zaliv Soline, a nearly land-locked small bay, lies 1.5 miles WNW of Rt Silo and is entered through a narrow channel. Although there are depths of 10 to 12m over a width of 100m in the entrance, the bay has depths of only 2 to 4m and is used mostly by small craft.

Tihi Kanal (45˚13'N., 14˚37'E.), 3 miles long, connects the NW end of Vinodolski Kanal to Rijecki Zaliv. The channel is deep and tortuous and leads between the mainland and the NE end of Otok Krk. Otocic Sveti Marko, barren and light-colored, lies close off the N extremity of Otok Krk and divides the N part of the fairway into two passages. The main passage leads NE of the island and is 0.2 mile wide. During strong gales, the current in this channel may attain a rate of 3 knots. The passage leading SW of the island is suitable only for small craft. A light is shown from the NE side of Otocic Sveti Marko.

A road bridge spans the two passages of Tihi Kanal at the S end of Otocic Sveti Marko. The W passage has a vertical

clearance of 50m and the E passage, under the center span, has a vertical clearance of 60m.

Southbound vessels using Tihi Kanal are generally given the right of way. Approval to transit Tihi Kanal must be obtained from the Rijeka port authority.

Kvarner and Approaches

11.31 Otok Susak (44˚31'N., 14˚18'E.), the S and outer island in the approaches to Kvarner, is bold and mostly flat. Its extremities are fronted by shallow banks. A main light is shown from a prominent structure, 12m high, surmounting the summit which rises near the center of the island. The village of Susak, with a prominent belfry, is situated in a cove at the NE side of the island.

Otok Unije (44˚38'N., 14˚15'E.), a long and irregular shaped island, lies with Rt Vnetak, its SW extremity, located 7 miles NNW of Otok Susak. The island consists of a chain of partly wooded hills and the summit, 132m high, stands in the SE part. The shores are rocky in places and indented, especially along the E side. A reef, marked by a beacon, extends up to 0.3 mile S from Rt Arbit, the S extremity of the island. Rt Lokunji, the N extremity of the island, is marked by a light. The village of Unjie, with a prominent church, stands at the head of a small bay near the center of the W side of the island. It is fronted by a small craft harbor used by local ferries. Vessels can anchor in the bay in depths of 20 to 25m, mud, about 0.6 mile offshore. Local knowledge is advised.

Otococi Srakane, consisting of two narrow islets, extends up to 3.7 miles SE of the SE extremity of Otok Unije. These islets are partly wooded and steep-to. Hrid Silo lies close SE of the SE islet. A light is shown from a prominent structure, 10m high, standing on this rock.

Unijski Kanal (44˚37'N., 14˚20'E.) leads between Otok Unije and Otococi Srakane, at the W side, and Otok Losinj, at the E side. This passage is partially landlocked and affords good shelter for a large number of vessels. It is reported to be a refuge for fishing vessels. Anchorage can be taken nearly anywhere, according to draft and shelter required, but the bottom close to the shore of Otok Losinj is reported to be rocky. The currents in the channel are tidal and are affected by the winds. The flood current is reported to sometimes attain a rate up to 2.5 knots.

Hrid Galiola (44˚44'N., 14˚11'E.), a low and rocky islet, lies on a reef 5 miles WNW of the N extremity of Otok Unijski. A main light is shown from a conspicuous structure, 19m high, standing on this islet at the E side of the entrance to Kvarner.

11.32 Otocic Zeca (44˚46'N., 14˚19'E.), a light-colored islet, lies at the E side of the channel 1.5 miles off the W coast of Otok Cres. The summit of the islet, 65m high, rises near its S end and is surmounted by a pyramid topped with a globe and a staff. A light is shown from a tower, 8m high, standing at the SW side of the island.

Rt Pernat (44˚57'N., 14˚19'E.), a conspicuous and steep-to point, is located on the W coast of Otok Cres 10 miles N of Otocic Zeca. Brdo Helm, 482m high, rises 5.5 miles SSE of the point and is prominent.

HRID GALIOLA LIGHT

Hrid Zaglav, marked by a light, is located at the E side of the channel. This rock lies on a shoal about 0.6 mile offshore 2 miles SSW of Rt Pernat.

Rt Crna Punta (44˚57'N., 14˚09'E.) is located on the W side of Kvarner 7.2 miles W of Rt Pernat. This point is dark-colored, steep-to, and thickly wooded. It rises to Vrh Brdo which stands 1.5 miles NNW and is surmounted by a stone pyramid. A light is shown from a prominent structure, 7m high, standing on the point and a stone monument is situated 0.3 mile NW of the light.

The coast to the S of Rt Crna Punta is described at the end of this sector.

Vrh Ucka (45˚17'N., 14˚12'E.), double-peaked, rises 3 miles inland 20 miles N of Rt Crna Punta. This mountain is 1,401m high and is surmounted by a television mast. It is very conspicuous from all parts of Kvarner.

Rt Sveti Andrija (45˚04'N., 14˚10'E.), marked by a light, is located 7 miles N of Rt Crna Punta and several prominent hotels are situated to the NE of it. Luka Rabac, a sheltered inlet, is entered SW of this point and the small resort town of Rabac stands on its NE side. The town is fronted by a small harbor which has depths of 3 to 4.5m alongside the quays and is used by small craft, coasters, and local ferries. Anchorage can be taken by medium-sized vessels in depths of 17 to 22m, mud, in the center of the inlet.

Caution.—Numerous submarine cables lie within the above channels and may best be seen on the chart.

11.33 Kanal Vela Vrata (45˚08'N., 14˚15'E.) connects the N end of Kvarner to Rijecki Zaliv and leads between the N end of Otok Cres, on the E side, and the mainland coast, on the W side. The channel is deep and clear, the bottom being formed of mud.

Rt Prestenice (45˚07'N., 14˚17'E.) is located at the E side of the channel. This point is steep-to, partly wooded, and rises rapidly to the SE. A main light is shown from a prominent structure, 13m high, standing on the point.

Rt Brestova is located on the W side of the channel 2.3 miles WNW of Rt Prestenice. A main light is shown from a framework tower, 5m high, standing on this point.

Caution.—A Traffic Separation Scheme has been established within Kanal Vela Vrata and may best be seen on

the chart. This scheme is not IMO-adopted. All vessels with a length greater than 20m are required to use the traffic lanes.

Rijeka (45˚20'N., 14˚26'E.)

World Port Index No. 41010

11.34 Rijeka, an extensive port, lies on the N shore of Rijecki Zaliv and comprises of the combined facilities of Rijecka Luka and Susacka Luka, close E. The main commercial harbor has several piers projecting from the shore which are protected by an extensive breakwater.

Winds—Weather.—The bora, dry winds from N to NE, often blows with extreme violence during the winter in the N part of Rijecki Zalif, but the position of the harbor on the NE side of the gulf gives considerable protection from these storms. The scirocco, humid winds from S to SE, predominates in spring and autumn and raises a small sea in the W part of the harbor. These winds are often accompanied by prolonged rain and thick mists.

Depths—Limitations.—The approaches to the port are deep. Rijecka Luka, the main harbor, has 2,545m of total quayage and provides 30 berths for ocean-going vessels. These berths are 79 to 246m long and have depths of 6.3 to 9.6m alongside. There are general depths of 15 to 30m within the basin. In addition, there is 450m of berthage, with depths up to 6m alongside, which is used by passenger ferries, fishing vessels, and small craft. Vessels up to 250m in length can be handled.

Susacka Luka, entered near the root of the main breakwater, is protected by short breakwaters and has an entrance 43m wide. This basin has 904m of principal commercial quayage with depths of 6.5 to 8m alongside.

The container terminal, situated E of Susacki Luka, consists of 407m of quayage with depths of 10 to 12m alongside. A ro-ro berth, 60m wide, lies close E of Susacki Luka and has a depth of 11m.

Aspect.—The city, with many prominent buildings, stands along the shore and is backed by high land. A main light is shown from a conspicuous structure, 38m high, standing N of the head of the breakwater of the main commercial harbor.

A large and conspicuous stone hospital, with a red roof, is situated 0.3 mile ESE of the main light. Numerous office buildings are situated to the E of this hospital. Numerous industrial installations, including a refinery and tanks, are situated to the W of the main light.

Pilotage.—Pilotage is compulsory for vessels over 500 grt and all vessels carrying dangerous cargoes. Pilots can be contacted on VHF and board within the anchorage areas or about 2.3 miles SW of the head of the main breakwater. Pilots will board vessels carrying dangerous cargoes about 8.5 miles SSE of the main breakwater. (See General Remarks).

Pilots are available at Rijeka, with advance notice, for all Croatian harbors.

It is reported that pilots, on request, will board vessels over 200,000 dwt about 2 miles S of the S entrance to Kanal Vela Vrata.

Anchorage.—Two designated anchorage areas, which may best be seen on the chart, lie centered 2.5 miles SW and 2.5 miles SE of the head of the main breakwater and have depths of 47 to 63m. A designated tanker anchorage area, which may best be seen on the chart, lies centered 4.5 miles SE of the head of the main breakwater and has depths of 57 to 63m.

In strong S winds, this roadstead may become untenable and vessels should seek shelter off the NW coast of Otok Krk.

Caution.—Although the approach to Rijeka generally presents little difficulty, vessels in winter should be prepared for severe weather in case of the rapid appearance of bora winds.

A prohibited anchorage area, which may best be seen on the chart, fronts the shore and extends SSW from the main harbor entrance between the two designated anchorage areas.

Several wrecks, some dangerous, lie in the approaches to the port and may best be seen on the chart.

11.35 Luka Martinscica (45˚19'N., 14˚29'E.), a shipyard complex, is situated 1.5 miles SE of Rijeka. This facility lies within a natural inlet and is protected by breakwaters. It can handle vessels up to 60,000 dwt.

Urinj Oil Terminal (45˚17'N., 14˚32'E.) is situated at Rt Skrkovac 4.2 miles SE of Rijeka. This anchorage berth can accommodate tankers up to 200,000 dwt which secure stern-to. The depths at the berth are reported to be from 45m forward to 20m aft, over mud. Two mooring buoys, lying about 70m offshore in a depth of 17m, mark the limits to which the stern of the vessel may approach the shore.

It is reported that an LPG terminal is situated at Srscica in the vicinity of the W entrance point of Bakarski Zaliv. The berth, 68m long, has a depth of 10m alongside and can handle vessels up to 4,500 dwt.

Bakar (45˚18'N., 14˚32'E.)

World Port Index No. 41030

11.36 The port of Bakar lies within Bakarski Zaliv, a large and nearly land-locked basin, which is entered 6 miles ESE of Rijeka. It serves as the bulk cargo harbor for Rijeka and has facilities for oil and ore.

Winds—Weather.—The bora blows with great violence in the vicinity of Bakarski Zaliv and although the NW part of the basin is protected, the wind coming off the slopes in the S part sometimes renders the entrance impossible to navigation. The bora approaches suddenly, sometimes lasting for two or three days, and then ceases just as rapidly. The scirocco blows along the axis of the basin and sometimes produces seas which frequently inundate the area.

Depths—Limitations.—There are depths of 30 to 44m in the middle of the entrance to Bakarski Zaliv and 20 to 35m within the basin.

The main facilities on the NW shore include a bulk berth, 384m long, with a depth of 18.5m alongside which can accommodate vessels up to 170,000 dwt and 18m draft. The oil facilities on the SW shore can handle tankers up to 80,000 dwt, mooring stern-to, and tankers up to 40,000 dwt and 9.7m draft, berthing alongside.

Aspect.—The shores of the basin are bold and rise steeply on all sides. Shoals, which front the entrance points, are marked by lighted buoys. A prominent castle stands close NE of the E entrance point and several conspicuous industrial installations are situated in the vicinity of the W entrance point.

Pilotage.—Pilotage is compulsory for vessels over 500 grt and all vessels carrying dangerous cargoes. Pilots can be contacted on VHF and board in the vicinity of the anchorage areas. (See General Remarks).

Anchorage.—Sheltered anchorage can be taken nearly anywhere in depths of 24 to 29m, mud, within the NW part of Bakarski Zaliv. Vessels carrying inflammable cargo are prohibited from anchoring, except for the purpose of berthing, within the basin.

11.37 Omisalj Oil Terminal (45˚13'N., 14˚33'E.) (World Port Index No. 41045) lies within Omisaljski Zaliv, an inlet, which is entered on the NW coast of Otok Krk, 7 miles SE of Rijeka.

Depths—Limitations.—The entrance to the inlet is 700m wide and there are depths of 55m in the approaches and 30m within the entrance. The oil terminal consists of two T-shaped piers with depths of 29m alongside. Tankers up to 350,000 dwt and 27m draft can be accommodated alongside.

Aspect.—The W side of the inlet is formed by Tenka Punta peninsula on which stands a prominent tank farm. The village of Omisalj, with a prominent belfry, is situated on a hill at the head of the inlet. The entrance fairway is indicated by a lighted range which may best be seen on the chart.

Pilotage.—Pilotage is compulsory. Pilots can be contacted on VHF and are available day and night. See Pilotage for Rijeka and General Remarks.

Port Dina (45˚12'N., 14˚33'E.), a petrochemical and gas terminal, lies in the vicinity of Rt Zaglav which is located 2 miles S of the entrance to Omisaljski Zaliv and is the S entrance point of Uvala Sapan (Uvala Sepen).

An LPG berth, formed by an L-shaped jetty with mooring dolphins, has a depth of 11.5m alongside and can handle gas carrier vessels up to 15,000 cu.m. and 10.5m draft.

A chemical berth, formed by a T-shaped jetty and mooring dolphins, has a depth of 15m alongside and can handle vessels up to 60,000 dwt and 14.5m draft.

In addition, there is a multi-purpose quay, 90m long, with a depth of 6m alongside.

Anchorage.—A designated gas carrier vessel anchorage area, which may best be seen on the chart, lies centered about 2.5 miles WSW of Rt Zaglav.

Mainland Coast—Rt Crna Punta to Rt Marlera

11.38 Rt Crna Punta (44˚57'N., 14˚09'E.), previously described, is the E entrance point of a double bay, formed by a small projection. Uvala Voscice, the E and smallest bay, is not recommended for anchorage. Anchorage, sheltered from N and W winds, can be taken in a depth of 44m, mud over rock, in the outer part of Uvala Koromacno, the W bay. A cement factory, with a tall chimney and a silo, is situated near the village of Koromacno in the NE corner of this bay and is fronted by a quay used by small craft.

Zaliv Rasa (44˚59'N., 14˚05'E.) is entered between Rt Ubac, which is located 3.5 miles WSW of Rt Crna Punta and marked by a light, and Rt Mulac, 0.5 miles WSW. This irregular shaped inlet is narrow, deep, and extends about 6 miles N to connect with a shallow canal.

Anchorage can be taken nearly anywhere within this inlet, but the best anchorages lie in the sheltered coves on the E side.

The village of Trget is situated in a cove 4.7 miles N of Rt Ubac and fronted by two piers. A timber terminal quay, 150m long, has a depth of 11m alongside and a livestock terminal quay, which can handle vessels up to 100m in length, has a depth of 7m alongside.

Anchorage can be taken in a depth of 16m, mud and gravel, about 0.2 mile S of the village of Trget.

The village of Brsica (Rasa) is situated at the head of Zaliv Rasa and has a small coal loading facility. There are two quays, with depths of 6m alongside, and a T-head pier, 70m long, with a depth of 8.8m at its head.

Pilotage.—Pilotage is compulsory for vessels over 500 grt. Pilots can be contacted by VHF and are available day and night. See Pilotage for Rijeka and General Remarks.

Caution.—Local magnetic anomalies have been reported within Zaliv Rasa.

Unmarked shellfish havens lie in places along the shores of Zaliv Rasa.

Several submarine cables lie across the S part of the inlet and should be avoided when anchoring.

11.39 Luka Krnica (44˚57'N., 14˚03'E.), a narrow inlet, indents the coast close S of the entrance to Zaliv Rasa. It has high sides and provides shelter from all but SE winds. A small fishing village is situated at the head.

Luka Vinjole, a wooded inlet, is entered 1.9 miles SSW of Luka Krnica and provides shelter to small craft with local knowledge It is divided into two parts by a rock, with a least depth of 0.3m, which lies close within the center of the entrance.

Luka Budava (44˚53'N., 14˚00'E.) is entered between Rt Seka, located 1.3 miles SSW of Luka Vinjole, and Rt Arne, 0.8 mile SSW. This inlet extends W and NW and has high sides covered with shrubs. Hrid Seka, a rock, lies at the N side of the entrance about 0.2 mile S of Rt Seka and is marked by a light. The village of Valtura, with a prominent belfry, stands 1 mile W of the head of the inlet. A point, surmounted by a house, divides the head of the inlet into two shallow coves. Temporary anchorage can be taken in depths of 13 to 20m about 0.2 mile SE of this point.

Rt Marlera (44˚48'N., 14˚00'E.), marked by a light, is located 5.2 miles S of the entrance to Luka Budava and is fully described, along with the coast to the SW of the point, in Pub. 131, Sailing Directions (Enroute) Western Mediterranean.

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